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## ABSTRACT

A study investigated the reading achievement and reading interests of eighth graders reading meaningful segments from social studies textbooks. Subjects, 88 eighth-grade students enrolled in the Florida State University Developmental Research School, took several tests and inventories designed to gather data in the areas of capacity, achievement, and reading interests. Subjects read segments from social studies texts written at or below grade level and answered questions designed to test literal comprehension, inferential composition, and vocabulary understanding. Results indicated that (1) a sample of history textbooks was shown to give inaccurate, insipid treatments of important historical periods; (2) readability formulas are not good indicators of the comprehensibility of social studies selections as measured by literal and inferential comprehension questions; (3) the subjects scored very poorly on vocabulary test items; (4) technical selections containing geography and science concepts and relationships were especially difficult to understand; (5) a statistically significant number of the best readers compared to the poorest readers like to read mystery and adventure books; (6) teaching strategies designed to improve students' attitudes toward social studies should be tried; (7) authors of textbooks should use writing strategies designed to increase the comprehensibility of texts; and (8) teachers of social studies should use directed reading-thinking activities to stimulate greater involvement of students in discussions leading to attainment of concepts. (Two tables of data are included; 18 references and comments on sections of the Reference Skills Test are attached.)  
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A STUDY OF THE SOCIAL STUDIES READING ACHIEVEMENT  
AND READING INTERESTS OF A GROUP OF EIGHTH GRADERS

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A STUDY OF THE SOCIAL STUDIES READING ACHIEVEMENT  
AND READING INTERESTS OF A GROUP OF EIGHTH GRADERS

J. C. Dewey's (1931) study of the comprehension difficulties a group of eighth graders encountered while reading several social studies topics stimulated our interest in this area. His test selections were on colonial lighting, the invention and development of the reaper, a description of the Dred Scott Decision, and the Articles of Confederation. Both objective tests and free-expression inference tests were administered. Subjects' aptitude as measured by the Kuhlman-Anderson Intelligence Test ranged from the 80-89 to the 120-129 category.

In the 1930s, eighth grade history textbooks were not particularly easy to read. In developing his test, Dewey used material from The American People and Nation by Tryon and Lingley (1929) and three other widely used textbooks. His criteria for selecting reading material from these texts were:

1. Paragraphs or units that contain certain meanings or concepts that require careful, inferential thinking.
2. Selections that discuss topics in political, economic, and social history.
3. Selections that lend themselves to several methods of testing.

4. Selections that are short enough to permit exhaustive testing yet long enough to permit a reasonable continuity of discussion.

The following topics were treated in these readings: colonial lighting, invention and development of the reaper, the Dred Scott decision, and the Articles of Confederation. These selections averaged 231 words in length, yet each was a unit that gave "a rather complete treatment of the topic in so far as the book gave it."

In analyzing his results, Dewey found low mean percentages for inferential test items. The following sentences and concepts were quite difficult for these students:

1. Aside from the fireplace, the candle was the chief source of light.
2. Cradle, mankind, reaper.
3. In some cases the harvest hands have eaten biscuits for dinner made from wheat standing in the fields in the morning.
4. Sue, recourse, Supreme Court, and territory (from the Dred Scott article).
5. Requisitioned, byword, and not worth a continental as well as stuffing their pockets with promises to pay (from the Articles of Confederation selection).

Typical reading comprehension difficulties were:

1. Inability to suppress previous knowledge that does not apply to the particular section read.
2. Ignorance of word meaning.

3. Tendency to disregard certain parts of the sentence.
4. Tendency to consider the reading process as merely memorizing words which are to be given back to the teacher regardless of what they mean.
5. Personal prejudice.

Some conclusions of Dewey's study:

1. Children may know certain meanings of words, but also lack the particular meanings needed to properly understand a given sentence.
2. Do not place too much confidence in verbal responses as evidence that students understand or in verbal presentation as an adequate teaching method.
3. Children in eighth grade did not seem to possess sufficient backgrounds in the fields of history, civics, economics, and geography, and general experience to understand and interpret such technical material as judicial decisions and problems of federal finance.

What do researchers have to say about the quality of present-day social studies textbooks? Armbruster (1988) writes of inconsiderate textbooks. Inconsiderate textbooks are "difficult to read, understand and learn from." Impediments to comprehension include "poor organization, lack of coherence, explanations that are inadequate because facts are merely mentioned, inappropriate vocabulary, and erroneous or inconsistent information." However, such features of inconsiderate

textbooks are not indexed by readability formulas, the general means of ascertaining the readability of text.

History texts are not, or at least should not be, a compendium of raw data, however. Facts, as White (1978, p. 43)\* has argued, "are constricted by the kinds of questions which the investigator asks of the phenomena before him." This means that history is a sense-making act. Facts are sought and presented in terms of the kinds of questions the historian asks and the kind of story s/he wants to tell. (Warren and Rosebery, 1989). They state that present day history textbooks used in the schools are not written with a model of history as inquiry in mind. When real historians write, there is "a constructive tension between data and interpretation that is integral to historical inquiry but is absent from textbook histories."

Textbook writing is a matter of concern. Students do not learn from the too prevalent vacuous, pointless writing found, for example, in A History of the United States (1986):\*

Missionaries led Father Eusebio Francisco Kino who entered Arizona in the late 1600s. In Texas, a mission was founded at El Paso in 1659. Six other missions and two forts were set up in Texas between 1712 and 1721. The Spanish advanced into California after Russian explorers and fur trappers began to show up there.

\*Complete reference not provided by Warren and Rosebery.

How can anyone be informed by or interested in such chopped-up, telegraphic material? According to Warren and Rosebery, history textbooks apparently have not changed much since 1912 when James Harvey Robinson (1912, p. 261)\* criticized textbooks of his time for "a careless inclusion of mere names, which can scarcely have any meaning for the reader and which, instead of stimulating thought and interest, merely weigh down his interest." Fortunately, the test selections used in the present study are interesting and more informative than those referred to by Robinson and by Warren and Rosebery.

The three-paragraph "discussion" from The Rise of the American Nation\* on the conflict over religion in the Reformation period is so insipid and misses the key point of the conflict, besides its error of tacitly "lumping" Lutherans in with Protestants--an historical inaccuracy--that we will not quote it. By way of contrast, Wallbank and Schrier (1964) devoted five pages to this key period in history and correctly explained the key concepts of the Reformation outlined by Martin Luther in 1517.

Warren and Rosebery have commented at length on this problem. However, we will include only their summary sentence: "For the moment what concerns us most is the apparent lack of any serious interpretive element in the school textbooks, which is reflected at least in part in the lack of explanation for major events." (p. 9)

\*Complete references not provided by Warren and Rosebery.

The Michigan State Board of Education Study (1982-83) of selected eighth grade United States history textbooks noted improved treatment of topics on American Indians, Hispanics, the handicapped, and bilingual students. Also, the treatment of blacks and of sex equity was significantly improved compared to results found in earlier studies. However, the study identified gross underrepresentations in the international aspects of our history and our contemporary society, with "references to other nations and cultures being weak and frequently distorted."

Gilbert T. Sewall (1988) co-director of the Educational Excellence Network, Teachers College, Columbia University, in his article "American History Textbooks: Where Do We Go From Here?" writes of the depth of history textbooks of the past, such as David Muzzey's American History.<sup>\*</sup> This history curriculum, however, "faced challenges from progressive educators, who considered such a framework too narrow." Not long after the social studies movement caught fire, it "proffered utilitarian subject matter and life-adjustment alternatives for students pursuing a general or nonacademic diploma" (pp. 554, 555). By mid-century intellectuals were deploring the "allergy" to historical study. Larkins and Hawkins (1987) have concluded that elementary texts contain much vacuous and sanitized information, "purged of any opportunity to give offense."

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<sup>\*</sup>Reference not provided by Sewall.



According to Sewall, "the National Council for the Social Studies . . . does not hold history and geography to be central to the field." He also laments the dull text that results when narrative is made "readable" and contrasts the lively, informative writing found in the Landmark Series with some of the excised texts found in present day books, noting that comprehension suffers when students use the latter.

Sewall recommends that textbook authorities take action in a number of areas; we will include only the first three:

1. Reaffirm history and geography as the primum mobile of social studies.
2. Stop using arbitrary gauges of readability and begin to write with style and clarity.
3. Give the text renewed prominence and coherence (pp. 557, 558).

#### Purpose of the Study

The present study was designed to answer these questions:

1. How well do eighth grade students read meaningful, but not insipid, segments of social studies material from texts that are written on a lower level of readability--third grade through eighth grade levels?
2. What problems do they have with word recognition, vocabulary meaning, and comprehension?
3. Which ability and achievement variables best predict--or are correlated with--the social studies reading variables of literal reading and inferential reading comprehension?
4. Which facets of the reading interests questionnaire are related to social studies reading?

## Method

### Subjects

The subjects were 88 eighth grade students from the Florida State University Developmental Research School in Tallahassee, Florida.

### Measuring Instruments

Several tests and inventories were used to gather data in the following areas of capacity, achievement, and reading interests:

1. Prior knowledge was ascertained by using the general information test of the Wechsler Intelligence Scale for Children (WISC).
2. Arithmetic reasoning was tested by using items from the arithmetic reasoning subtest of the California Test of Mental Maturity, elementary level, 1950 edition.
3. Auditory memory ability was ascertained by individual administration of the WISC Auditory Memory Test.
4. Literal comprehension, inferential comprehension, and vocabulary understanding of social studies selections were tested by administration of the Social Studies Reading Test developed by the senior author. Segments of the following selections were taken from a social studies text by Abramowitz and Abramowitz (1981): "Robert Goddard and American Rocketry" (readability level 6.5); "What Is Meant by Human Rights?" (7.7); and "Why Did the Colonists Declare Their Independence?" (8.0). From King, Rudman,

and Leavell (1981) selections used were "Daylight, Darkness and Seasons" (4.5) and "The Causes of the Climate of Warm Desert Regions" (3.9). "Weather Forecasting" (8.0) was written by the senior author. Median readability was 7.1

Each selection was followed by eight questions. The total test contained 18 vocabulary items--seven were multiple choice and 11 required the subjects to develop an answer. Comprehension questions used concepts from Bloom's Taxonomy. Of the nine literal comprehension questions, four required "translation." Among the 21 questions classified broadly as inferential, six were inference; one, interpretation; nine, analysis; and one, application.

The dependent variables were inferential comprehension and literal comprehension as measured by the Social Studies Reading Test. General information, arithmetic reasoning, and auditory memory were selected as predictor variables.

5. Further predictor variables--in addition to general information, arithmetic reasoning, and auditory memory--were sought through administration of the Comprehensive Test of Basic Skills, 1982 Edition, Form U, Level H (Grades 6.6-8.9). Reading, Language, Mathematics, Reference Skills, Science, and Social Studies constitute the sections of the CTBS. Each section contains one or more tests. For the Reference Skills section, subtests and number of

questions in each were: Table of Contents (4), Dictionary Entries (5), Consumer Skills Reading (4), Use of the Library Card Catalogue and Using Guide Words (4).

6. The Reading Interests Questionnaire was developed by the senior author.

### Procedures

The various tests and inventories were administered according to the directions. However, the general information test was given as a group test, with a time limit of seven minutes. The arithmetic reasoning test (CTMM) was administered as a group test. The blank page opposite the items was available for computations. Time limit was four minutes. The auditory memory test was given individually by several seniors in education who were trained for the task. The Social Studies Reading Test (time limit 40 minutes) and the Reading Interests Questionnaire were administered by the authors. The California Test of Basic Skills was administered by faculty personnel from the school's guidance office. Statistical procedures included simple correlations, chi square, multiple correlations, and MANOVA.

### Limitations of the Study

It would be difficult to compare results on the various selections in the Social Studies Reading Test because a selection could have a low readability score, be readable as far as word recognition is concerned, and yet be conceptually

difficult for the readers. Furthermore, the questions can also create varying degrees of complexity for the reader.

### Findings

Purpose one of this study was to determine how well these eighth grade subjects could read segments of social studies text written on not-too-difficult levels of readability as measured by the Fry Readability Graph. The six selections used in the Social Studies Reading Test ranged in readability from 3.9 to 8.1 grade level, with a median difficulty of 7.1 grade placement.

Table one presents the titles of the selections, their readabilities, percentage of literal and inferential items correct, percentage of correct vocabulary items, and the most difficult vocabulary items.

Table 1.

Mean Readability and Reading Scores for Each Reading Selection  
and Most Difficult Vocabulary Items

		<u>Percentage Correct</u>			<u>Most Difficult Items</u>	
		<u>Readability</u>	<u>Comprehension</u>			<u>Vocabulary</u>
			<u>Literal</u>	<u>Inferential</u>		
1.	"Robert Goddard & American Rocketry"	6.5	71.6	69.3	50.0	ingenuity; jet propulsion
2.	"Weather Forecast- ing"	8.1	67	64.4	79.5	humidity; various
3.	"What Is Meant by Human Rights?"	7.7	*	62.5	49.1	Chicano; dignity; prejudice (m.c.)
4.	"Daylight, Dark- ness, and Seasons"	4.5	32.9	55.7	35.2	technical name for one complete journey around the sun; earth's axis tilted the same way
5.	"Why Did the Colonists Declare Their Independence?"	8.0	64.7	52.3	88.1	convince; rebel (noun); pamphlet (m.c.)
6.	"The Causes of the Climate of Warm Desert Regions" +	3.9	57.9	39.8	15.9	latitude (4.5% correct); rain shadow

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\* No literal comprehension items

= Technical: science/geography

m.c. = multiple choice

Word Recognition

Each subject read orally to an assistant excerpts from the selections within a day or two after the group administration. Word recognition was not a real problem for these subjects.

Subjects' Erroneous Conceptions

For "Robert Goddard and American Rocketry," the mean vocabulary score was 50 percent. Some misconceptions of ingenuity were evidenced in these definitions: keep up what you believe in even if someone else doesn't; belief that he was right; ideas; personal mind power; to set off. Misconceptions for jet propulsion were: steering of a jet; blast off (how?); power of taking off at high speeds (what is the jet?). The problem here is failure to define the term. There were sufficient cues in the text so that an acceptable definition could have been made.

"What Is Meant by Human Rights?" Mean vocabulary score, 49.1% correct. Misconceptions: For prejudice (multiple choice, m.c.); jealousy; proud; being good to other people; being poor. Dignity (m.c.): proud; bashful. Chicano: Spanish; Mexican; German; Indian; Chinese; foreign; a city; Oriental; the way it happens; and Asian. The idea of Mexican-American or Latin-American was missing in these responses.

"Weather Forecasting" Mean vocabulary score, 79.5% correct. Misconceptions: For various: everything; very high limits; very. For humidity: the sky; thickness or thinness of the air; very dry; air . . . hot or cold when air is stuffy or

thinnes (sic). In these definitions, the key idea of moisture is missing.

"Daylight, Darkness, and Seasons" Mean vocabulary score, 35.2% correct. Misconceptions: For "What does this mean--earth's axis tilted the same way?" (This was actually counted as a comprehension item, but it was an involved concept and originally was included as a vocabulary item): It's always through the center of the earth; it is always at an angle; the earth spins but the axis does not; it stays there. A number of definitions that were a bit better than that were given one-half credit. The desired answer is: "The angle does not change, but its position (or angle) relative to the sun changes." For "What is the technical name for one complete journey around the sun?" the desired answer is revolution or orbit; however, one-half credit was given for the response "one year." The answer is not in the selection.

"Why Did the Colonists Declare Their Independence?" Mean correct score was 88.1%. Pamphlet (m.c.) was not a big problem; however, rebel was. Some misconceptions for rebel: a person who is born in the south; to be against something; a person against the Coferate (sic); a retrated (sic) person; it means that someone likes your idea; a british citizen/from the north; a white person who is in the army; a soldjet (sic); it means that some likes your idea. Misconceptions for convince include: like bribe; to make someone do something easy; make believe.



"Causes of the Climate in Warm Desert Regions" Mean vocabulary score, 15.9% correct. Misconceptions: latitude: invisible lines running east and west; lines that run horasontal (sic) (This subject did get rain shadow correct.); wide or broad (This person drew on her knowledge of Latin, but did not give the correct definition); horizontal: from east to west on a globe or map; the imagionary (sic) lines going north and south; latitude goes east and west; the lines on the earth running north and south horizontally. (This appears to be an oxymoron response.) Comment: Many subjects tried to define "lines of latitude" rather than "latitude." These incorrect responses could be due to lack of thorough knowledge of the concept and also not reading carefully. We believe it is mainly the former, however. Rain shadow: a wet area (This person got convince and a rebel correct); moisture falls; a whole section of land which rains constantly; a dark cloud with heat carrying it; skies with a few clouds; this is like a cloud; a rain cloud. Comment: The text stated, "The dry side of a mountain is called a rain shadow."

#### Predicting Inferential Comprehension

Which variables best correlated with or predicted inferential comprehension in the social studies test developed for this research study? The multifactor analysis of variance (MANOVA) was used to help answer this question.

Information as measured by the WISC correlated .465 with inferential comprehension of the social studies test (SSRT)

passages; it accounts for 21.65% of the variance in inferential comprehension. The Reference-Skills subtest of the California Test of Basic Skills (CTBS) accounts for 11.44% of the variance in inferential comprehension. Interaction of Reference Skills and Information accounts for 15.23% of the variance. The Multiple R is .6951; therefore, the cumulative variance is 48.32%. Both Information and Reference Skills are in the "top-down" processing domain. Harris and Hodges (1981) discuss processing:

Top-down processing is a theoretical view of reading as a process of using one's experiences and expectations in order to react to text and to build comprehension. In top-down processing, comprehension is seen as reader-driven rather than text-driven.

Bottom-up processing is a theoretical view that comprehension in reading consists of the accurate, sequential processing of text. In bottom-up processing, comprehension is seen as text-driven; it is built up and governed by the text.

Interactive processing is a theoretical position that reading involves both the processing of text and the use of experiences and expectancies that the reader brings to the text, both sources of information interacting and modifying each other in reading comprehension. In interactive processing, comprehension is generated by the reader under the stimulus control of the print.

### Predicting Literal Comprehension

Which variables best correlated with or predicted literal comprehension in the social studies reading test? Reference-Skills (CTBS) accounts for 23.689% of the adjusted variance in literal comprehension. The Multiple R is .5381 and the total variance is 28.95%. The intercorrelation of literal reading comprehension and inferential reading comprehension was so low that total comprehension was not analyzed. Both literal comprehension of the Social Studies Test and the Reference-Skills Test require the ability and willingness to dig out information. Working the items in the Reference-Skills Test involves dealing with fairly "fragmented" material that requires many changes of cognitive set; there is little in this test that would interest the poor reader. (See the Appendix for an analysis of the Reference-Skills Test.)

### Typical Reading Comprehension Difficulties

In this study a number of typical difficulties appeared:

1. The two technical tests involving difficult geography, science, and spatial concepts and relationships had the lowest percentages correct in both comprehension and vocabulary, although their readability grade levels as determined through application of the Fry Readability Graph (formula) were by far the lowest.
2. Ignorance of word meaning.
3. Inability in some cases to keep a concept and/or relationship in mind while relating others to it in order to develop

the correct relationships involved in getting the correct answer was a problem. This was particularly true of the selection "Daylight, Darkness, and Seasons."

4. At times the subjects experienced difficulty in digging out the answers to literal comprehension questions. It may be that concentrating and searching diligently in order to ferret out the answers is not a preferred approach to the printed page for many of these subjects; and it is not one at which 50% or more are very proficient.

#### Reading Questionnaire Results

The reading questionnaire had a number of categories such as favorite books, hardest books read recently, kinds of books I find most satisfying (27 categories), the three greatest people, and subjects in which I get the best grades and the ones in which I get the poorest grades.

Interest in types of reading material. In only two categories out of 27 were there statistically significant differences between the best readers and the poorest readers. We predicted a difference between them in the category "Mystery Books" because of the intricate plots, the amount of keeping track of several plots, the memory required, and the involved reasoning needed to actually determine "who 'dunnit'?" The prediction was correct. A statistically significant greater number of the best readers compared to the poorest readers liked to read mystery books. ( $\chi^2 = 8.47$ ,  $df = 1$ ,  $p = <.01$ )

Also, a statistically significant greater number of the best readers compared to the poorest readers liked to read adventure books ( $\chi^2 = 14.34$ ,  $df = 1$ ,  $p < .001$ ).

Favorite books. In another segment of the questionnaire, the subjects listed their favorite books. The results for the 16 best readers and the 16 poorest readers are shown in Table Two.

Table 2

Favorite Books of the 16 Best Readers and the 16 Poorest Readers

<u>Best Readers</u>	<u>Poorest Readers</u>
<u>12 Actual Books</u>	<u>3 Actual Books</u>
The Hobbit	Sweet Valley High
Hardy Boys	Gone With the Wind
Lord of the Rings (Trilogy)	Sybil
The Cay	<u>3 Types of Books</u>
Big Red	Romance (2)
Surviving	Surfing (1)
Where the Red Fern Grows	<u>2 Magazines</u>
Another Fire Myth	Sports Illustrated (2)
Trixie Belden	<u>7 no favorite</u>
Dragon Riders	<u>1 the writing was illegible</u>
<u>4 no favorite</u>	
16 Total	16 Total

The best readers understood the term "books" and complied by listing books. The poor readers listed a variety of things,

including seven "no favorites" compared to four "no favorites" by the best readers. Various interpretations can be made. Among the best readers, the four who had no favorites had a mean reading score of 36.5 compared to a mean score of 18 for the seven from the poorest reading group who had no favorite book. One interpretation: The four very best readers read so many books that it was difficult for them to choose a best book. They also may have had favorite books in several categories. The poor readers, for any number of reasons, including possibly the difficulty in "getting through" books, may not have read many actual books.

Best grades and poorest grades. The students were also asked to list the subject in which they received the best grades and the one in which they received the poorest grades. The best readers tended to get their best grades in physical education, English, and science and their poorest grades in social studies (3) and Latin (4). The poorest readers tended to get their best grades in English, mathematics, and physical education and their poorest grades in social studies (8). None of the poorest readers received their best grades in social studies. How can the generally poor showing in social studies be explained? Did the social studies teacher's demands exceed the students' ability? Did the students not apply themselves in this subject? Is social studies generally unpopular? Are social studies textbooks not well written? There are some clues to answers to the last two questions.

Girod and Harmon (1987) reviewed research on point three, the popularity of social studies: "The data are overwhelming. Social studies is a discipline most school-aged children would prefer to avoid." Fraser (1981) notes that "the longer children are in school the more negative their attitudes (toward social studies) become." Girod and Harmon suggest that "teachers might change students' attitudes by applying strategies developed to influence people's views." They present strategies, with examples suitable for elementary, high school, and college. The type of child, whether one with a positive or negative attitude, for whom each strategy might fit is also identified. The suggested strategies are discussed under the following headings: persuasion, reinforcement, developing inconsistencies, personalized contact, a show of competence, enthusiasm, improvised argument, simulations, student input, probing questions, and criticism.

A study by Cox and Kazarian (1985) addresses point four on the comprehensibility of texts. They noted that "textbooks are used as a major source of information in late elementary school and beyond." They studied three current and popular seventh and eighth grade level books in the area of U.S. history. They did cohesion analysis and concept development analysis of these texts. It was clear that less cohesive passages, and there were too many in two of the three texts, were, in fact, hard to comprehend. Concept development in the three textbooks was largely unsuitable for the intended readers.



The "findings indicate that the authors of all three textbooks were writing for relatively sophisticated audiences in terms of both content knowledge and reading skill" (p. 141). Finally, Cox and Kazarian, as a result of the insights gained in their study, explain how authors should write in order to improve comprehensibility of texts.

J. L. Davidson (1985) utilized groups of eighth grade students from a Chicago suburban middle school in order to study the effectiveness of two types of instructional lessons. "Two of the groups received instructional lessons described as Teacher-Student Generated Lessons (TSGL) in which the text material in science and social studies was presented by means of an open-communication structured content Directed Reading-Thinking Activity (Stauffer, 1980). The other two groups received instructional lessons described as Manual Generated Lessons (MGL)," a closed-communication structure. Davidson found that closely following MGLs may stimulate a (negative) "more of the same" attitude from students that does not stimulate reading for concepts and generalizations. The T-SGLs "stimulate greater involvement from students who work together in discussions in order to attain understanding of concepts." One would hope, then, that more comprehensible social studies textbooks and better instructional lessons, such as the teacher-student generated lessons, would improve the achievement and the attitudes of students; these phenomena should work interactively.



## Conclusions

1. A sample of history textbooks was shown to give inaccurate, insipid treatments of important historical periods.
2. Today history textbooks too often do not have the depth of such well-known works of yesteryear authored by David Muzzey and by Tryon and Lingley or by Wallbank and Schrier.
3. "Chopping up" text in an effort to make the text more readable results in dull narratives that hinder comprehension.
4. Textbooks must be written with style and clarity if readers are to read with understanding and enjoyment.
5. History and geography should be reinstated as the primum mobile of social studies.
6. The readability of technical selections as ascertained by application of a readability formula is not a good indicator of their comprehensibility as measured by literal and inferential comprehension questions or by vocabulary questions.
7. The subjects in this study generally scored very poorly on the vocabulary test items. The median score for the six selections was 49.5%.
8. Technical selections containing geography and science concepts and relationships were especially difficult to understand.
9. Although people might assume that eighth graders in a good school know the meanings of certain words such as ingenuity, jet propulsion, humidity, various, Chicano,

dignity, prejudice, convince, rebel (noun), pamphlet, and latitude, such assumptions need to be made with care. For example, only 4.5% of the subjects correctly defined latitude.

10. Since technical expository reading materials involving geographic, scientific, and spatial concepts and relationships are difficult to comprehend, topical information in these areas should be taught systematically, and special reading instruction given regularly over the period of a person's years in school, at least from the primary grades through grade 12.
11. Since General Information and Reference-Skills achievement account for 21.65% and 11.44%, respectively, and 15.23% in interaction, of the variance in Inferential Comprehension on the Social Studies test, and since both Information and Reference Skills utilize top-down processing, one can see the necessity of not only helping students develop indepth real and vicarious experiences in a variety of topical information areas in order to better comprehend reading materials on a wide variety of topics that are treated in some depth, but also of providing reading instruction designed to analyze such works in order to help the readers see the relationships of ideas in such material.

12. The relationship ( $r = .4867$ ) between literal comprehension on the Social Studies test and performance on the Reference-Skills test is easy to understand because both require ferreting out information and understanding the relationships among ideas and at times dealing with tasks that are not very interesting, particularly the ones on the Reference Skills test. Please see the analysis of the latter in the Appendix. Yet the differences in the nature of the tasks probably help to account for the relationship not being any higher.
13. A statistically significant ( $p < .01$ ) greater number of the best readers compared to the poorest readers like to read mystery books. An explanation was proffered: The difference could well be due to the intricate plots, the need to keep track of several plots, the memory required, and the involved reasoning needed to determine "who 'dunnit'?" It is suggested, therefore, that authors of mystery books write books at several levels of intricacy, which might allow readers to progress developmentally through the levels over a period of time.
14. Perhaps the fact that a statistically significant ( $p < .001$ ) greater number of the best readers compared to the poorest readers like to read adventure books is due to the best readers, who are often intuitive, being able to thrive on vicarious experiences, whereas the poorest readers,

- who are often sensing, according to Myers-Briggs Personality Type theory (Myers, 1980), like direct, "hands-on" experience.
15. Since none of the 16 poorest readers received their best grade in social studies, but eight received their poorest grade in it, we looked at studies regarding the popularity of social studies. The research in this area shows social studies to be unpopular and reveals that these negative attitudes toward it increase the longer children are in school.
  16. Certain teaching strategies designed to improve the attitudes of students toward social studies should be tried by social studies teachers.
  17. Since the research shows poor text cohesiveness and lack of adequate concept development interfere with students' ability to understand history textbooks, and writing strategies for increasing the comprehensibility of texts are available, it is incumbent upon authors of texts to utilize such strategies.
  18. Teachers of social studies (and science) should use the Teacher-Student Generated Lessons that utilize directed reading-thinking activities to stimulate greater involvement of students in discussions leading to attainment of concepts.

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## Appendix

A careful, item-by-item analysis of the Reference Skills Test (CTBS) was conducted. Our comments by sections of the test follow.

- A. Table of Contents. Item 1 involved a translation, a subtlety; 2, a differentiation; 3, a need to determine the overall thrust of the Table of Contents; 4, the readers have to know the technical term "bibliography."
- B. Dictionary Entries. Item 5 involves a translation that should be easy but very unexciting; 6 involves a figurative expression that is probably unfamiliar to poor readers; 7 requires a translation and some deducing; 8 requires (a) reading each entry carefully and (b) knowing what the abbreviations v., n., and adj. mean--a boring task; 9 should be easy.
- C. Consumer Reference Skills. 10, easy item; 11 takes some time, probably easier for people who read a variety of ads; 12 could be difficult for a person (poor reader) who could not read "miscellaneous" or who thought a guitar was an appliance; 13 requires experience in cost effective shopping--probably not the forte of the poor reader.
- D. Library Card Catalogue. 14, confusing because one does not ordinarily think of an illustrator as being an author; 15 and 16 are easy; 17 involves using guide words and making fine discriminations; probably difficult and boring for the poor and average reader; 18 requires ability to



classify well; 19 should be easy, but it requires the ability to read the word "quotations" and understand the concept involved; 20 requires the correct set and the willingness to carefully consider each option.